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RD

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/374,565	08/13/99	STOUGHTON R	9301-058

020583
PENNIE AND EDMONDS
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NEW YORK NY 10036-2711

HM12/0718

EXAMINER	
MARSCHEL, A	
ART UNIT	**PAPER NUMBER**
1631	10

DATE MAILED: 07/18/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

Office Action Summary

Application No.	Applicant(s)
09/374,565	Stoughton et al.
Examiner	**Art Unit**
Ardin Marschel	1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Apr 6, 2001*

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *41-45 and 48-87* is/are pending in the applica

4a) Of the above, claim(s) *1-40, 46, and 47 have been canceled.* is/are withdrawn from considera

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *41-45 and 48-87* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirem

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). *1 sheet*

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

19) ☐ Notice of Informal Patent Application (PTO-152)

20) ☒ Other: *Attachment to PTO-948*

Applicant is hereby notified that the required timing for the correction of drawings has changed. See the last 6 lines on the sheet which is attached entitled "Attachment for PTO-948 (Rev. 03/01 or earlier)". It is noted that a PTO Form 948 was mailed with Paper No. 6 on 10/23/00. Due to the above notification Applicant is required to submit drawing corrections within the time period set for responding to this Office action. Failure to respond to this requirement may result in abandonment of the instant application or a notice of a failure to fully respond to this Office action.

Applicants' arguments, filed 4/6/01, have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claims 49 and 85 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Reconsideration of the instantly pending claims has revealed that written support is lacking for certain claims. Each claim is explained as follows regarding its content of NEW MATTER. The

written support has been reviewed corresponding to each claim as pointed to by applicants in the amendment, filed 8/13/99, on page 18 thereof.

Claim 49, part I), indicates that drug responses are randomized by randomizing biological pathway response. This is also indicated in claim 85, part (a), as an option. This is interpreted as a randomization of both drug response data as well as biological pathway response data. The support for claim 49 on pages 48-51 clearly indicates that drug response data "or" pathway response data are randomized (but not both). This is set forth on page 49, lines 29-32, and on page 51, lines 24-26. The above claims 49 and 85 dual randomization practice has not been found.

Claim 45 is rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized in Ex parte Forman, 230 USPQ 546 (BPAI 1986) and reiterated by the Court of Appeals in In re Wands, 8 USPQ2d 1400 at 1404 (CAFC 1988). The factors to be considered in determining whether undue experimentation is required include: (1) the quantity of

experimentation necessary, (2) the amount or direction presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. The Board also stated that although the level of skill in molecular biology is high, the results of experiments in genetic engineering are unpredictable. While all of these factors are considered, a sufficient amount for a *prima facie* case are discussed below.

The practice of the "Levenberg-Marquandt method" in claim 45 has not been set forth or even referenced in the instant specification. Without specific guidance for its performance, the method is guesswork and clearly undue experimentation.

Claims 41-45, 48-56, and 58-87 are rejected under 35 U.S.C. § 112, first paragraph, because the specification, while being enabling for perturbing biological pathways wherein at least one reasonably is affected by a drug action, does not reasonably provide enablement for any undefined perturbation of an undefined biological pathway as is indicated in step (b) of claim 41, for example. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make/use the invention commensurate in scope with these claims.

Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized in Ex parte Forman, 230 USPQ 546 (BPAI 1986) and reiterated by the Court of Appeals in In re Wands, 8 USPQ2d 1400 at 1404 (CAFC 1988). The factors to be considered in determining whether undue experimentation is required include: (1) the quantity of experimentation necessary, (2) the amount or direction presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. The Board also stated that although the level of skill in molecular biology is high, the results of experiments in genetic engineering are unpredictable. While all of these factors are considered, a sufficient amount for a *prima facie* case are discussed below.

In the specification on page 3, lines 7-33, the invention background indicates that the discernment of cause and effect regarding drug action is described as difficult and in lines 28-30 as being "*ad hoc* further experimentation" without effective methods of analysis. This sets the background for drug action analysis as being frequently undue experimentation. On page 4, lines 9-17, the instant invention is described as involving the comparing of measurements in pathways possibly affected by a drug

which is being analyzed regarding biological pathways affected by its action. This is also stated on page 13, lines 7-13, in that the biological pathways being analyzed are "likely to be involved in the effects of the drug". This is again emphasized on page 15, lines 1-7, wherein the biological state of a cell is measured to the extent that it is sufficient to characterize the effects of a drug. On page 16, lines 26-34, even an ideal drug will "complicated and often unpredictable indirect effects". Thus, the comparison of pathway response(s) must proceed in some way that reasonably and predictably with result in defining pathway(s) which are affected by a drug action. One way is to at least practice step (b) of claim 41 with a biological pathway which is known to be affected by the type of drug under study such as also noted in the instant specification at page 25, lines 16-21. Another is to practice step (b) by activating most nearly all pathways in a cell which will then reasonably predictably include at least one pathway which is acted on by the drug under study. Due to the above noted undue experimentation for perturbing any pathway without some relevance to the drug under study the practice of the instant claims also requires undue experimentation without being limited to at least reasonable choice(s) of biological pathways for step (b). The remainder of the instant claims also contain this issue either directly or via dependence from other claims.

Claim 41-45 and 48-87 is rejected, as discussed below, under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 45 cites the "Levenberg-Marquandt method" but this is not cited anywhere in the specification as filed. Thus, the specification is not commensurate in scope with claim 45.

In claim 41, last line, the result of the determination of the "best scaling transformations" represents the biological pathways(plural) involved in the action of the drug being tested. Thus, a choice of scaling transformations must occur in order to determine the "best" ones in order to, in turn, represent the biological pathways involved in the drug action. This is interpreted as requiring at least three biological pathways being evaluated for scaling transformations. A plurality (at least two) are representative of the drug action as the "best". In order for this plurality of biological pathways to have the best scaling transformations there must be at least one biological pathway which has less than the "best". Thus, at least three biological pathway responses must be evaluated. This conflicts with part (b) of claim 41 in that only "one or more" such biological pathway response is measured. Step (c) also may be practiced with only one biological pathway response. Shouldn't these steps at least determine or analyze at least three

biological pathways in order to permit the "best scaling transformation" evaluation in the last 3 lines of claim 41? Clarification via clearer claim wording is requested. Claims dependent from claim 41 also contain this unclarity due to their dependence as well as is similarly present in claims 80-87.

An additional claim wording unclarity is that the phrase "one or more biological pathway responses" contains a conflict between "one" and "responses"(plural" in said phrase. This phrase is present at numerous cites throughout the instant claims. This unclarity takes on more meaning as to unclarity due to the unclarity summarized in the immediately above paragraph. Clarification via clearer claim wording is requested.

The disclosure is objected to because of the following informalities:

In the specification on page 49, line 29, the word "date" appears a misspelling of "data" in context.

Correction is required.

No claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CFR § 1.6(d)). The CM1 Fax Center number is either (703)308-4242 or (703)305-3014.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ardin Marschel, Ph.D., whose telephone number is (703)308-3894.

The examiner can normally be reached on Monday-Friday from 8 A.M. to 4 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, Ph.D., can be reached on (703)308-4028.

Any inquiry of a general nature or relating to the status of this application should be directed to Patent Analyst, Tina Plunkett, whose telephone number is (703)305-3524 or to the Technical Center receptionist whose telephone number is (703) 308-0196.

June 29, 2001

ARDIN H. MARSCHEL
PRIMARY EXAMINER

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.